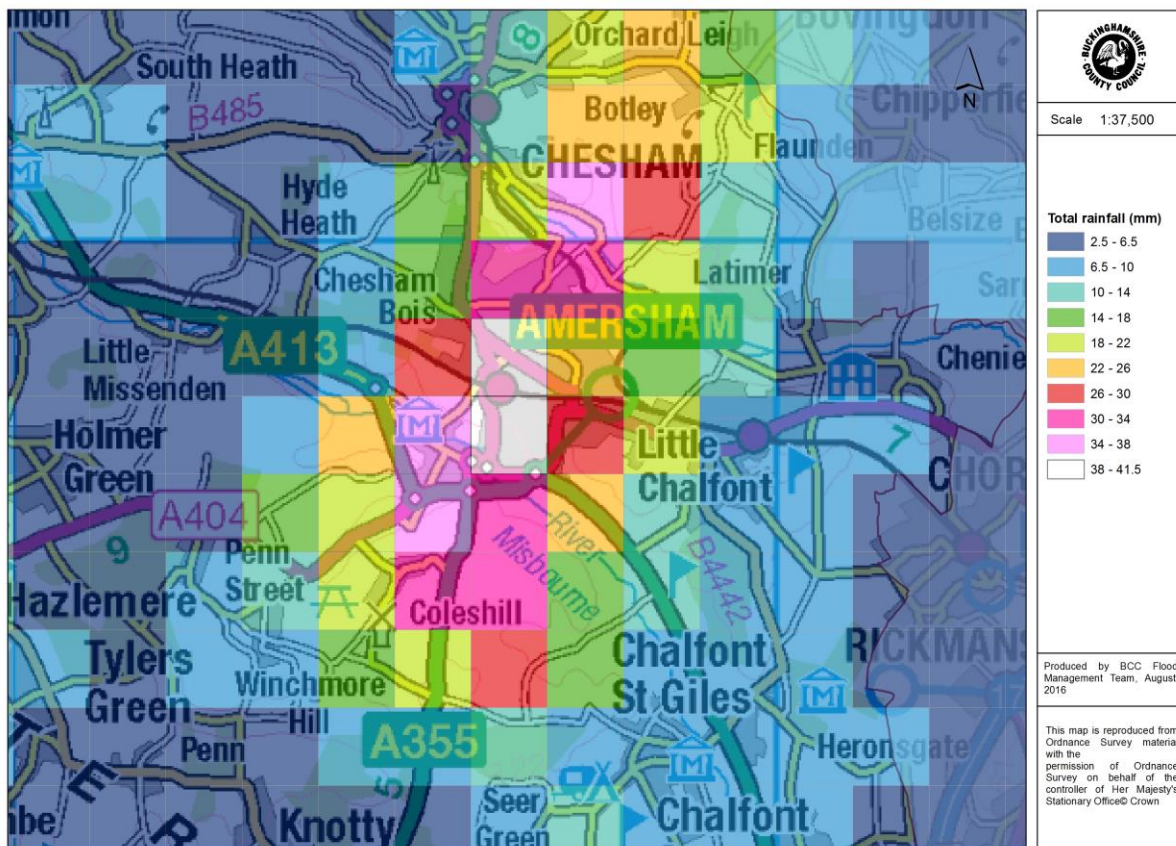


April 2018

Buckinghamshire County Council Flood Investigation Report

Old Amersham, Amersham
15th June 2016



HYRAD rainfall 24 hour total for the Amersham area, 15th June 2016

April 2018

Revision Schedule

Buckinghamshire County Council **Flood Investigation Report**

Rev	Date	Details	Author	Checked and Approved by
1	06/04/2017	Version 1 - draft	Abigail Alderson	Alex Back
2	01/11/2017	Version 2 – Final Draft	Alex Back	Karen Fisher
3	16/04/2018	Version 3 - Final	Alex Back	Karen Fisher

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Executive Summary

This report has been produced by Buckinghamshire County Council (BCC) to investigate the flooding that occurred in Old Amersham and Amersham on 15th June 2016. The report provides details of the event and makes recommendations for Risk Management Authorities (RMAs) to undertake to prevent a repeat in the future.

A Section 19 Investigation is a statutory requirement for Lead Local Flood Authorities (LLFA) under the Flood and Water Management Act (FWMA) 2010. On becoming aware of a flood in its area, the LLFA must, to the extent that it considers it necessary or appropriate, investigate:

- Which RMA have relevant flood risk management functions; and
- Whether each of those RMAs has exercised, or is proposing to exercise, those functions in response to the flood.

It was deemed necessary to produce this report as the flood event in Old Amersham exceeded BCC's criteria for carrying out a Section 19 Investigation.

The aim of the Section 19 Investigation is to give an explanation of what happened in the flood event and what were the RMAs' responsibilities during the event. It is not intended to identify which properties flooded, nor to provide an exhaustive hydraulic analysis of the event. The recommendations are there to help the RMAs learn lessons from the event and to move forward with management of the flood risk in the future.

The flood event in Old Amersham and Amersham occurred as a result of a high intensity rainfall event. Localised rainfall resulted in high volumes of surface water runoff on urban surfaces causing flooding of homes and businesses. Due to the nature of the event, there was very little warning or time to prepare. As the event was of relatively short duration, and occurred during business hours, shop owners were able to minimise damage to stock. In total across all the areas flooded 9 residential and 20 commercial properties all flooded internally.

A list of recommendations is included in the report which is intended to ensure that the flood management, warning and response to events are improved going forward. All the RMAs will be involved in taking forward these recommendations.

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1. Introduction

1.1 Background to investigation

BCC as the LLFA has a responsibility to record and report flood incidents as detailed within Section 19 of the FWMA 2010:

Section 19

- (1) On becoming aware of a flood in its areas, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate-
 - (a) Which risk management authorities have relevant flood risk management functions, and
 - (b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.
- (2) Where an authority carries out an investigation under subsection (1) it must-
 - (a) Publish the results of its investigation, and
 - (b) Notify any relevant risk management authorities.

BCC has established criteria for section 19 flood investigations which can be found in Appendix A.

It was deemed necessary to complete an investigation into the flood incident in Old Amersham because it meets the following thresholds:

- Internal flooding (including to basements) to five or more residential properties within an area of 1km²
- Internal flooding (including to basement) of at least one property for one week or longer
- Internal flooding of two or more business premises within an area of 1km²
- Flooding of one or more items of critical infrastructure, which could include hospitals, health centres, clinics, surgeries, colleges, schools, day nurseries, nursing homes, emergency services stations, utilities and substations.

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1.2 Site Location

Old Amersham is part of Amersham, a market town of approximately 14,000 inhabitants located at the centre of Chiltern District in the south of Buckinghamshire, as shown in Figure 1.

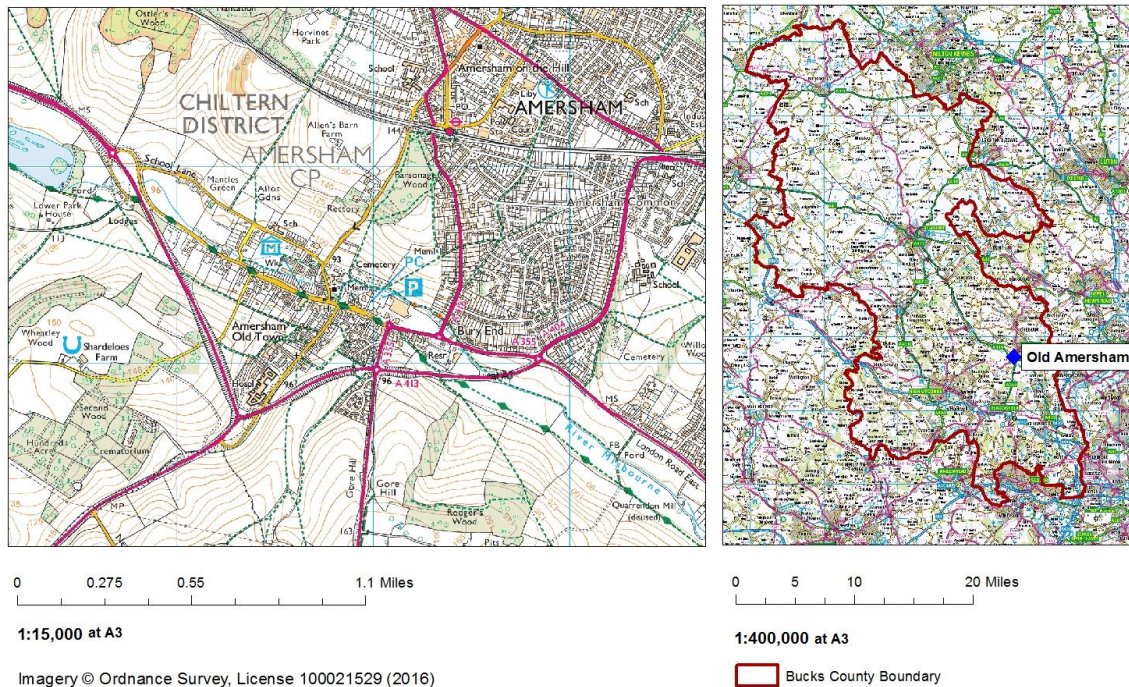


Figure 1: Location of Old Amersham at County and local level (Ordnance Survey)

1.3 Drainage system and river network

The River Misbourne is a main river that flows through Old Amersham, as shown in Figure 2. It is a chalk stream that flows for 17 miles (27 km) from Mobwell Pond just north of Great Missenden to its confluence with the River Colne, which itself is a tributary of the River Thames. Apart from a small section in Great Missenden, the River Misbourne is classed as a main river and comes under the responsibility of the Environment Agency (EA). The Misbourne is culverted in some sections through the town, allowing for access to properties and the passage of flow under the highway. In several cases, properties have been built above the culverted river.

The EA is the Risk Management Authority (RMA) for the main rivers, as defined in section 4.3. The EA has permissive powers to work on main rivers and the sea to manage flood risk. BCC, as LLFA for Buckinghamshire, is the RMA for ordinary watercourses.

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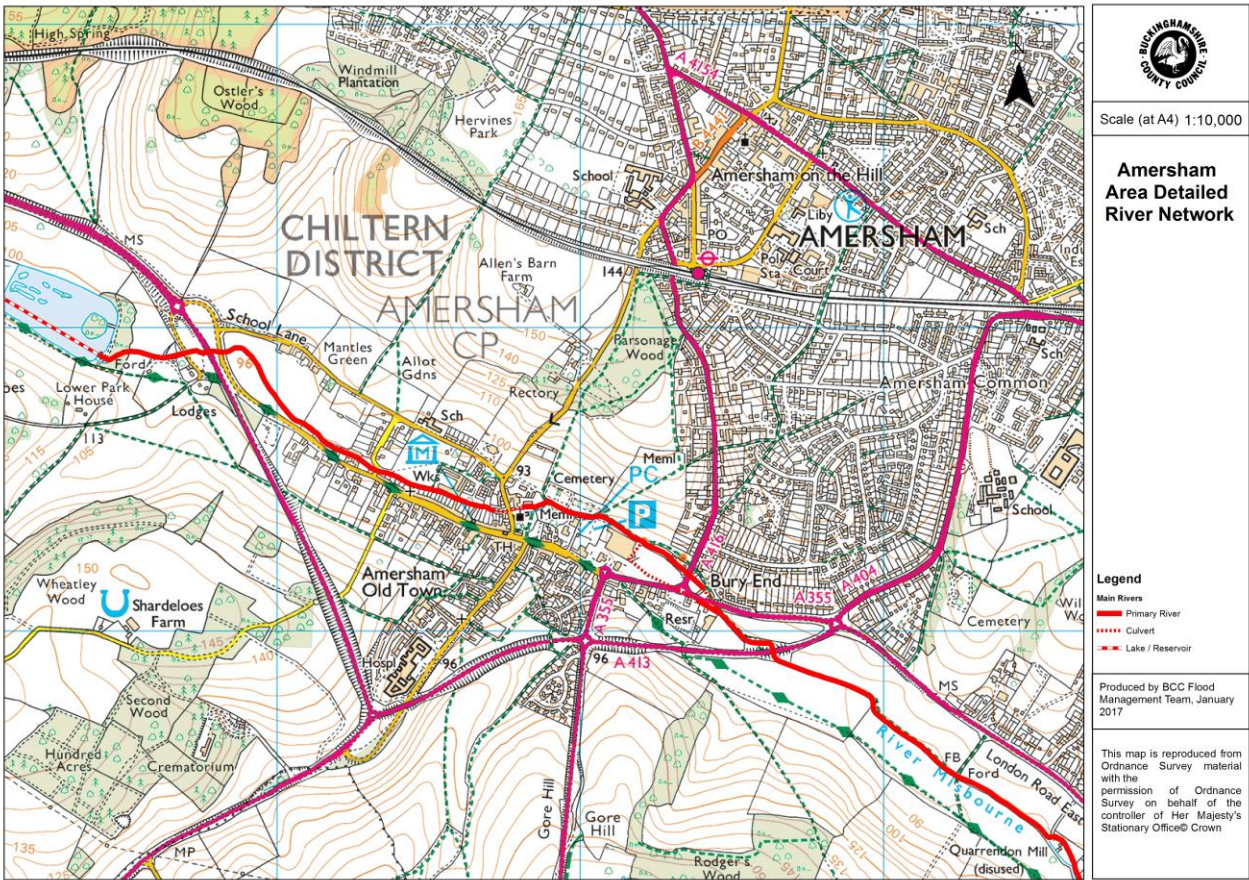


Figure 2: Amersham Detailed River Network

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2. Background

2.1 Catchment characteristics

The valley of the River Misbourne at Old Amersham slopes from 150-160mAOD either side of the town down to 95m AOD where the river flows through Old Amersham towards the southeast. Old Amersham is situated on alluvium (clay, silt, sand and gravel) along the line of the Misbourne, with no superficial deposits in Old Amersham outside of the alluvium areas. The solid geology is chalk and the River Misbourne is characteristic of a chalk stream, where flash flooding is rare unless groundwater levels are elevated. The typical range for the River Misbourne at Missenden is between 0.04m and 0.07m, although the highest recorded level is 0.46m in March 2014.

The publically available *Fluvial Flood Map for Planning* (see Figure 3) models the area which could be flooded from the ordinary watercourse by a flood with a 1 in 100 (1%) chance of occurring each year (medium blue/ Flood Zone 3), and by a flood with a 1 in 1000 (0.1%) chance of occurring each year (light blue/ Flood Zone 2). For Old Amersham, the difference between the two is not considerable; the steep slopes of the river channel maintain a constrained floodplain area.

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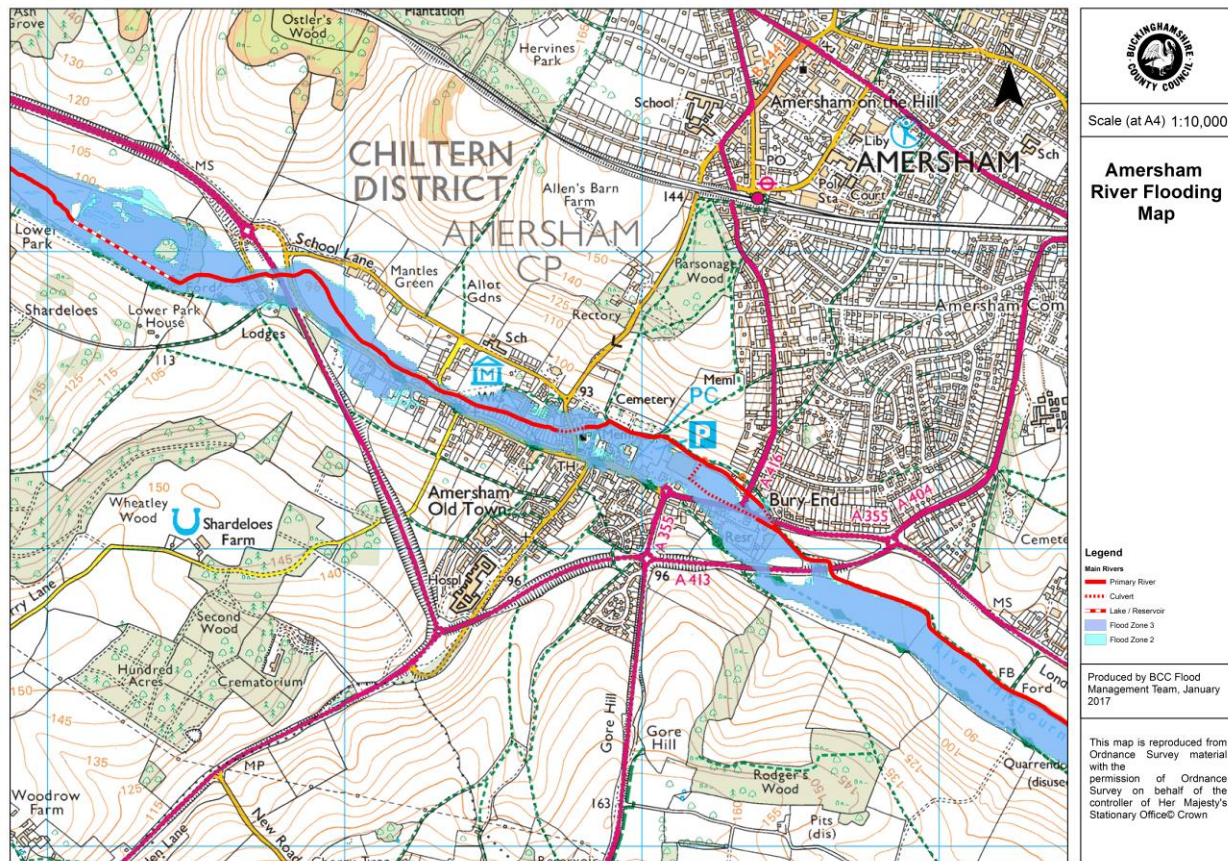


Figure 3: Environment Agency Risk of Flooding from Rivers and the Sea

Figure 4 shows the publically available *Flood Risk from Surface Water* flood mapping, shown here for a flood event with a 1 in 1000 (0.1%) chance of occurring in any given year. Surface water flooding occurs when extreme or prolonged rainfall cannot infiltrate into saturated ground, or flow into the rivers and/or highways drainage due to high volumes of water. The Flood Risk mapping is viewable at: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>. It has not been possible to reproduce this mapping at a closer scale for the purposes of this report, but different scenarios of depth, velocity and extent can be viewed at various scales via the above link.

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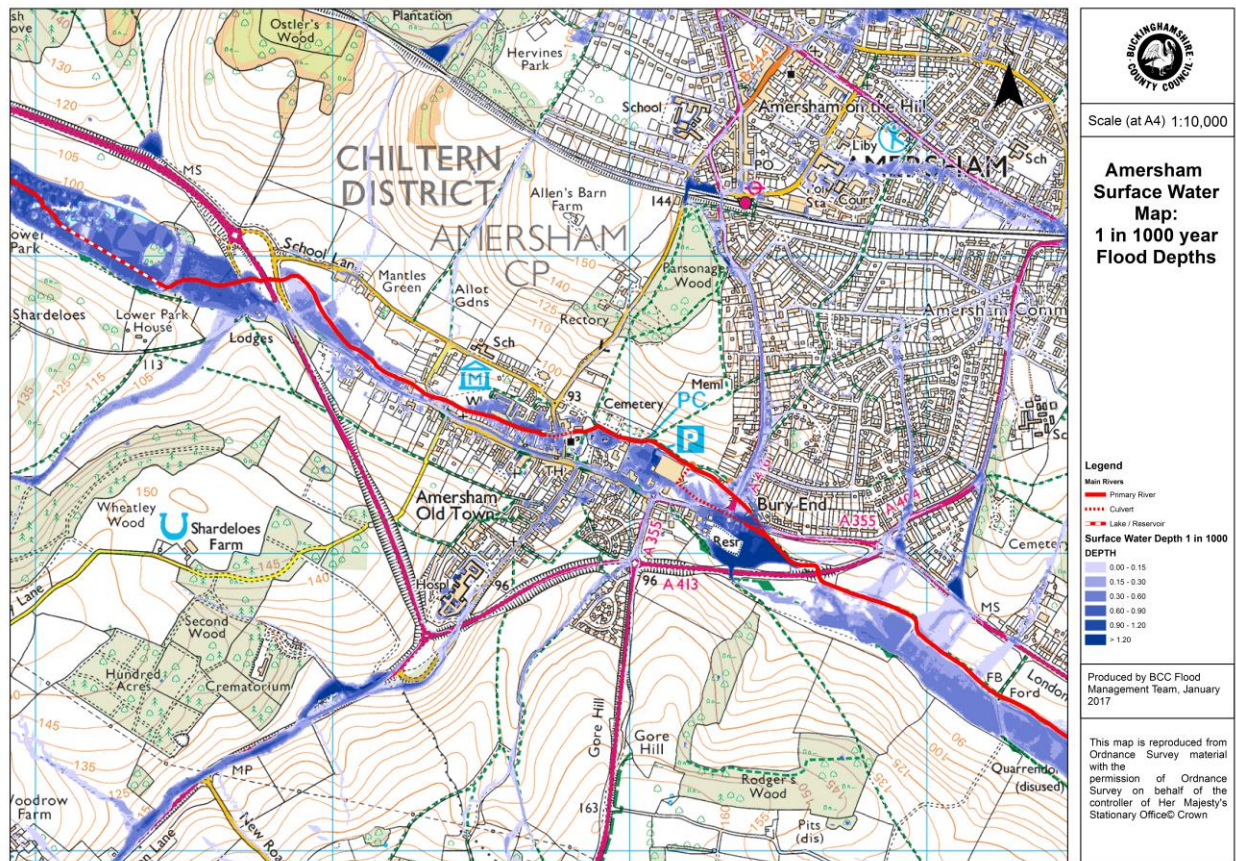


Figure 4: Environment Agency Risk of Flooding from Surface Water and its depths in a 1 in 1000 year flood

2.2 Previous flood events

Several properties along the High Street were flooded in the winter of 2000/1. At least one of these was flooded internally again during the winter 2014 flooding. Two other businesses reported, during site visits following the event, that the flood barriers they installed following the 2000/1 event effectively protected their premises in 2014. A report produced by the Chiltern Society into the flooding of 2000/1 indicated flooding to the rear of St Mary's Church as well as basement flooding to multiple properties on the High Street (Chiltern Society, 2001). Further flooding occurred in 2003. Amersham on the Hill, in particular Shortway and Grimsdells Lane, had flooding incidents in January 2007.

A household on the High Street whose garden backs onto the River Misbourne reported that the garden had been flooded on three occasions prior to the 2014 event, including once in March 2013 and once in August 2013. Both the 2013 flooding events and that of 2014 are reported to have led to flows of river water down the High Street from west to

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east.

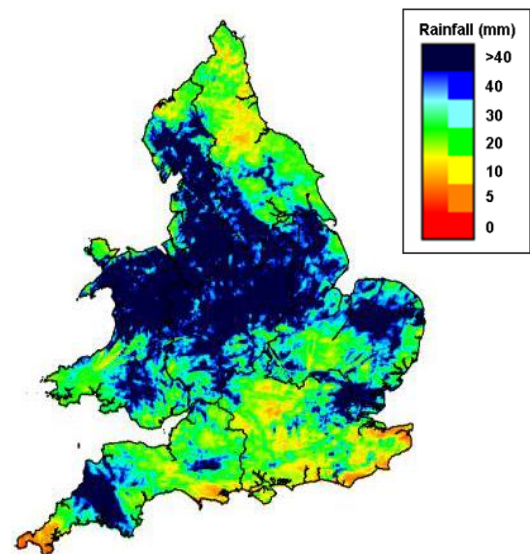
The most recent flood event in Old Amersham occurred in January-February 2014, after a prolonged period of above average rainfall which, combined with exceptionally high groundwater levels, raised river levels. In addition, a culvert blockage in the town caused the River Misbourne to back up, while the blockage of a drainage asset caused a secondary flow down the High Street. A riverbank collapse also caused property flooding. This is reported and documented in a Section 19 Flood Investigation [report](#) for the event.

3. Analysis of 15th June 2016 flood event

3.1 Conditions at the time

The week preceding the 15th June 2016 flood event had been the wettest week across England since the end of March 2016. The entirety of June 2016 was particularly wet, with 173% of the long term average rainfall for June recorded for the south-east of England (EA, 2016). Between the 8th and 21st June, many parts of the country received >40mm in weekly precipitation (figure 5).

Although June 2016 was a particularly wet month, the 15th June event was not well represented in local rain gauges (table 1). The event was extremely localised, as shown in HYRAD imagery, which shows intense pockets of rainfall across the area (figure 6), one of which centred over Amersham which indicates that 38 to 41.5mm fell in a 24 hour period.



8 to 14 June

Figure 5: Rainfall totals over the period 8-14th June 2016 (EA, 2016)

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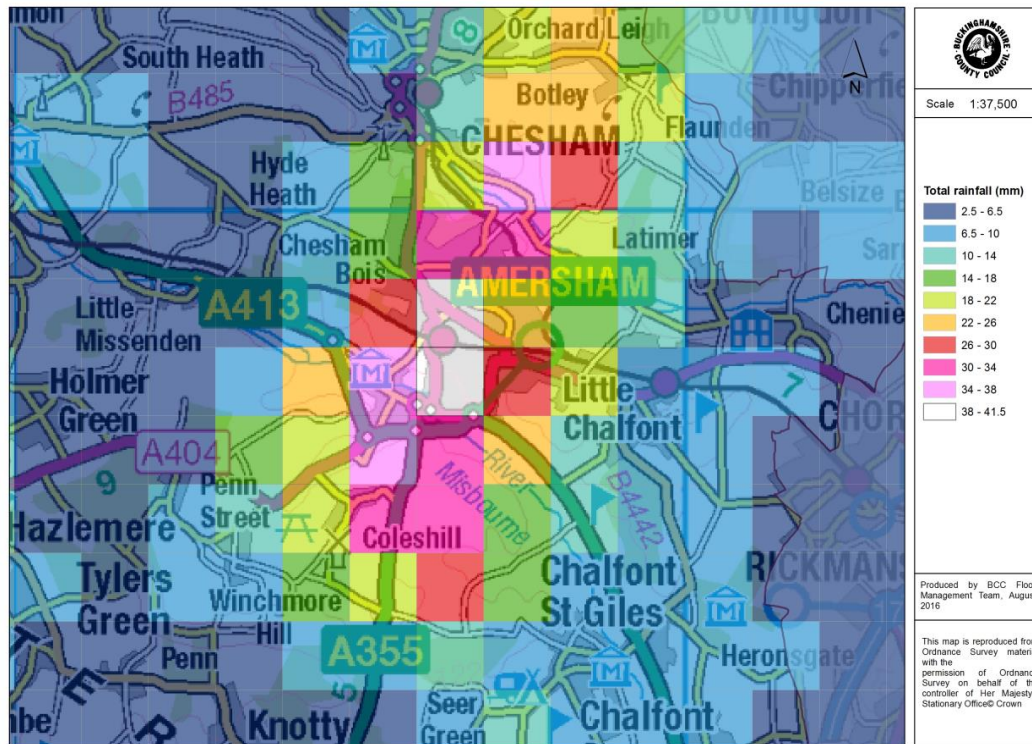


Figure 6: HYRAD rainfall 24 hour total for the Amersham area, 15th June 2016

Table 1: Rainfall totals in the Amersham region on 15th June 2016

Closest rain gauges to Old Amersham and distance from town	24 hour total on 15 th June 2016 (mm)	Grid Reference
Chenies (≈ 4 miles)	5.6	TL 01686 00016
Prestwood Reservoir (≈ 6 miles)	0.2	SP 86658 00994

3.2 What happened?

At approximately 16:30 on the afternoon of 15th June 2016, the area surrounding Old Amersham and Amersham experienced 40-60minutes of very intense rainfall, so heavy in places along the high street that car alarms were set off. Witness accounts say that surface water built up on pavements and the road and then came in towards the shops on the northern side of the High Street from the opposite, higher side of the A355.

Nearby, the roof of Amersham Health Centre gave way under the weight of the surface water. Bucks and Milton Keynes Fire and Rescue Service attended the scene and the centre had to close until the following day. The backdoor of the centre also flooded due to runoff from Chiltern Avenue, despite some work having been done here previously to

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improve drainage.

A local leisure centre and several car garages also experienced internal flooding and had to close early and switch off power supplies, with the roof of one also being compromised. The local superstore experienced flooding of warehouses and shop floor, with the worst affected being the petrol station which needed to close for several hours.

Although the majority of the flood damage and response was centered around Old Amersham, this investigation has raised issues which were experienced in Amersham on the Hill on the same afternoon. Grimsdells Lane and Shortway in Amersham on the Hill both also suffered property and highway flooding during the event.

3.3 Possible causes

Many of the properties in Old Amersham are historic, listed buildings. As identified by the EA and Historic England, Amersham has 38 listed buildings (all grades) in a 1km² area at risk, which ranks it the seventh highest in England. Those homes and shops which have low or no thresholds were most vulnerable, especially as flood waters reached 20-30cm depth in places due to the gradient of the street. The online flood maps (section 2.1) highlight the northern side of the High Street (A355) as being naturally vulnerable due to the street gradient. Some of these same properties also back on to the River Misbourne. Many parts of the High Street have a medium river flooding risk and a high surface water risk. River flooding for this event was not a concern, with river levels reaching 0.185m, well within the typical in-bank range and below the highest recorded level of 0.46m in March 2014.

Over 14 homes and businesses along the High Street were affected. The primary mechanism of this flooding was water seeping through and under the front doors, entering the properties. Figure 7 shows the location of gullies in Old Amersham which are all connected to the surface water drainage system which is maintained by Transport for Buckinghamshire (TfB). The surface water drainage system along the High Street flows south to north into the River Misbourne until the river channel splits after the superstore. The existing surface water drainage system was compromised by the volume and intensity of the surface water runoff.

Although the system is comprehensive in most places, a large portion of the high street contains fewer road gullies (figure 7). The High Street and Broadway in Amersham Old Town suffer from flash flooding during heavy rainfalls, due largely to inadequate

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drainage in the High Street. Old Amersham has been flagged previously as a flooding hotspot, with the Preliminary Flood Risk Assessment ([PFRA 2011](#)) for Buckinghamshire citing that ‘*The High Street and Broadway in Amersham Old Town suffer from flash flooding during heavy rainfalls, due largely to inadequate drainage in the High Street.*’

An additional issue raised by several residents and shop owners was that there was a period drama filming in this location 3 weeks prior to the flood event, and that there may be the possibility of hay and straw from this event which entered the drainage system and may have exacerbated the flooding. Residents stated that they saw hay floating in floodwaters at the time. This cannot however be confirmed as a direct cause of the flooding.

In Amersham on the Hill, Grimsdells Lane and Shortway appear to be the low points in the area for surface water flooding. Although the 15th June 2016 event was severe, residents report that even moderate rainfall results in street flooding approximately 3 times a year, especially in autumn when leaves fill drains, exacerbating the issue. Cleaning and surveying of the highway drainage system were completed during 2016/17 and a capital drainage project in Grimsdells Lane is planned for 2017/18, this work is the responsibility of TfB.

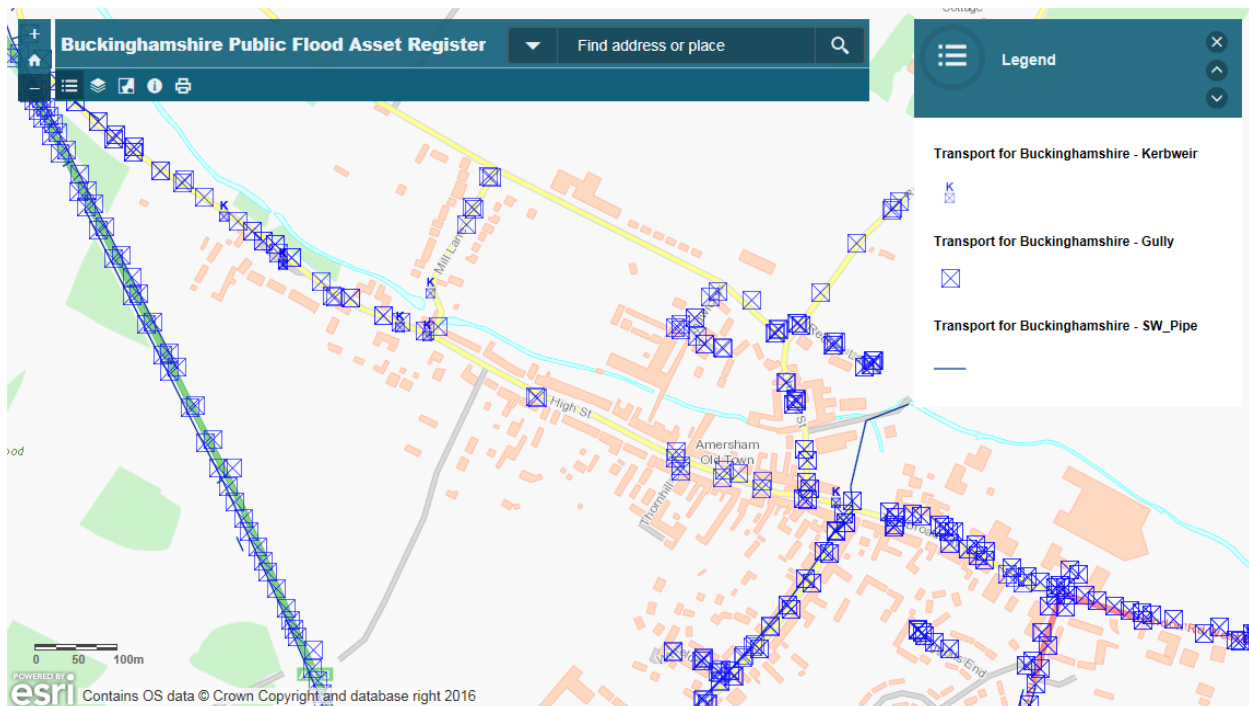


Figure 7: Surface water drainage in Amersham

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3.4 Incident response

This rainfall and flooding event occurred with little to no warning and the sheer volume of rainfall caused extensive flash flooding along the high street in Old Amersham and in places in Amersham on the Hill. Buckinghamshire and Milton Keynes Fire and Rescue Service (BMKFRS) were the first to respond to emergency calls (see table 2). Chiltern District Council also distributed sandbags on the day. TfB attended the following day and BCC Strategic Flood Management team attended the following week to investigate the event.

Table 2: Incident response following 15th June 2016 flooding

Date	Time	Activity/event	Agency
15 June	17:20	Water coming through ceiling, King George V Road, Amersham. One appliance and crew from Amersham attended, along with an officer. Firefighters isolated the electricity and gave advice	BMKFRS
15 June	17:23	External flooding, The Penningtons, Amersham. An officer attended and gave advice.	BMKFRS
15 June	17:23	External flooding, Station Road, Amersham. An officer attended and gave advice.	BMKFRS
15 June	17:25	External flooding, Chiltern Avenue, Amersham. An officer attended and gave advice.	BMKFRS
15 June	17:37	Flooding affecting electrics, White Lion Road, Amersham. Firefighters isolated the electricity and helped stem the flow of water.	BMKFRS
15 June	17:49	External flooding, Shortway, Amersham. An officer attended and gave advice.	BMKFRS
15 June	17:49	External flooding, London Road West, Amersham. An officer attended and gave advice	BMKFRS
15 June	17:51	External flooding, Grove Road, Amersham. An officer attended. Services of brigade not required.	BMKFRS
15 June	18:01	External flooding, Grimsdells Lane, Amersham. An officer attended and gave advice.	BMKFRS
16 June	-	Local Area Technician attended and inspected drains	TfB
21 June	-	Buckinghamshire Strategic Flood Management officers attended and interviewed residents and business owners	BCC

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4. Responsible Authorities and Landowners

There are different responsibilities for flood management depending on the type of flooding. Organisations responsible for flooding are known as Risk Management Authorities (RMAs) and their responsibilities are detailed below. Riparian landowners also have responsibilities for watercourses across their land and these are also detailed below. These are summaries of the details included in the BCC Local Flood Risk Management Strategy ([2017](#)).

4.1 Lead Local Flood Authority

The Lead Local Flood Authority in this area is BCC. BCC has a role as a RMA in coordinating management of local flood risk from surface water, ground water and ordinary watercourses in the county.

4.2 Chiltern District Council

Chiltern District Council have responsibilities to inspect and maintain watercourses on District Council land, respond to requests for assistance during flood events and have the power, if instructed by BCC, to carry out flood risk management work which will benefit management of surface runoff, groundwater and ordinary water courses.

4.3 Environment Agency

The EA is one of the RMAs as defined by the Flood and Water Management Act 2010. Protecting the river environment and managing flood risk is part of their job. The EA is the RMA for flooding from main rivers.

4.4 Highways Authority – Transport for Buckinghamshire

Any flooding on and from highways is managed by the Highways Authority which is BCC and the highways function is managed by TfB.

4.5 Water Utility Company - Thames Water

Thames Water is responsible for flooding from foul sewers and surface water sewers which they own. Whilst undertaking this they must manage flood risk from sewers.

4.6 Landowners and riparian owners

Landowners and riparian owners must maintain any culvert, or the bed and banks of any adjacent watercourse. They should clear away any debris from the watercourse or culvert even if it did not originate from their land.

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Riparian owners can find further guidance on their responsibilities as landowners in the Environment Agency document 'Living on the Edge' which can be found online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297423/LIT_7114_c70612.pdf.

4.7 Residents

Residents have a responsibility to take measures to protect themselves and their property. Resources available on the [Blue Pages](#).

4.8 Emergency Responsibilities

The emergency responsibilities are outlined in table 1 below. Please note that Parish and Town Councils do not have a legal obligation to respond to emergencies. Any service they provide is voluntary and unique to each Parish or Town Council.

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Table 1 Roles and responsibilities in an emergency, during and after a flood event

<p>Local (County and District) Authorities</p> <ul style="list-style-type: none"> • Coordinate emergency support within their own functions • Deal with emergencies on 'non main rivers' • Coordinate emergency support from the voluntary sector • Liaise with central and regional government departments • Liaise with essential service providers • Open rest centres • Manage the local transport and traffic networks • Mobilise trained emergency social workers • Provide emergency assistance • Deal with environmental health issues, such as contamination and pollution • Coordinate the recovery process • Manage public health issues • Provide advice and management of public health • Provide support and advice to individuals • Assist with business continuity 	
<p>Police Force</p> <ul style="list-style-type: none"> • Save life • Coordination and communication between emergency services and organisations providing support • Coordinate the preparation and dissemination <p>Fire and Rescue Service</p> <ul style="list-style-type: none"> • Save life rescuing people and animals • Carry out other specialist work, including flood rescue services • Where appropriate, assist people where the use of fire service personnel and equipment is relevant <p>Ambulance Service</p> <ul style="list-style-type: none"> • Save life • Provide treatment, stabilisation and care at the scene 	<p>Utility Providers</p> <ul style="list-style-type: none"> • Attend emergencies relating to their services putting life at risk • Assess and manage risk of service failure • Assist with recovery process, that is, water utilities manage public health considerations <p>Internal Drainage Board</p> <ul style="list-style-type: none"> • Operate strategic assets to reduce flood risk in partnership with RMAs and public <p>Town and Parish Councils</p> <ul style="list-style-type: none"> • Support emergency responders • Increase community resilience through support of community emergency plan development <p>Voluntary services</p> <ul style="list-style-type: none"> • Support rest centres • Provide practical and emotional support to those affected • Support transport and communications • Provide administration • Provide telephone helpline support
<p>Environment Agency</p> <ul style="list-style-type: none"> • Issue Flood Warnings and ensure systems display current flooding information • Provide information to the public on what they can do before, during and after a flood event • Monitor river levels and flows • Work with professional Partners and stakeholders and respond to requests for flooding information and updates • Receive and record details of flooding and related information • Operate water level control structures within its jurisdiction and in line with permissive powers • Flood event data collection • Arrange and take part in flood event exercises • Respond to pollution incidents and advise on disposal • Assist with the recovery process, for example, by advising on the disposal of silt, attending flood surges 	

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5. Conclusions and recommendations

5.1 Conclusions

The flood event in Old Amersham and Amersham occurred as a result of a highly localised intense rainfall event, in places over 40mm in 24 hours. This rainfall resulted in high volumes of surface water runoff on urban surfaces causing flooding of homes and businesses. In total across all the areas flooded 9 residential and 20 commercial properties all flooded internally. Due to the nature of the event, there was very little warning or time to prepare. As the event was of relatively short duration, and occurred during business hours, shop owners were able to minimise damage to stock.

The investigation has helped inform proactive flood risk management by BCC, working with our partners in other RMAs and the local community. The following provides a brief overview of specific recommendations and activities, some of which are already underway. The Strategic Flood Management Team will regularly monitor the delivery of these recommendations.

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5.2 Recommendations

Authority/ Stakeholder	Recommended Actions
All RMAs	<ul style="list-style-type: none"> • Make improvements to the emergency response and coordination from all RMAs. • Continue to work in partnership with RMAs.
BCC	<ul style="list-style-type: none"> • Facilitate sharing of information between RMAs and the community. • Review the property level protection (resilience and resistance measures) options in Amersham as part of the ongoing feasibility study. • Prepare brief for project on TfB Capital Drainage Programme for High Street Old Amersham (to include missing pipework and review suitability of current drainage assets). • Raise issue of frequency of cleaning gullies with TfB.
EA	<ul style="list-style-type: none"> • Explore the possibility of issuing warnings for surface water flooding
TfB	<ul style="list-style-type: none"> • Continue to carry out cleansing of all gullies and highway drainage as part of the ongoing maintenance schedule. If flow restrictions or other problems are detected as part of the maintenance exercises, repair of these should be prioritised in the schedule. Specifically Chiltern Avenue. Investigate frequency of gully clearance. • Consider design for exceedance principles in the design of new highway drainage. • Improve understanding of the location, capacity and state of repair of highway drainage in Old Amersham and Amersham on the Hill. Surveys and cleaning were completed during 2016/17 with a capital drainage project to follow during 2018/19. • Capital drainage project for Grimsdell Lane area to be completed during 2017/18
Town council, Amersham society or local residents	<ul style="list-style-type: none"> • Work with the BCC Resilience team and TfB regarding the level of response to emergencies and what support is available to them. • Work with the BCC Strategic Flood Management team regarding the setting up of a Flood action group.
Riparian Landowners	<ul style="list-style-type: none"> • Ensure that the River Misbourne's banks are maintained in a suitable manner. The guidance given in the EA's 'Living on the Edge' booklet regarding riparian owner responsibilities should be followed. • Undertake clearance of vegetation and debris on the Misbourne with guidance from relevant RMAs.
Residents	<ul style="list-style-type: none"> • Sign up for the Environment Agency's Floodline Warnings Direct, where available for fluvial flooding from the River Misbourne. • Take measures to protect themselves and their property against flooding, e.g. Property Level Protection (PLP). • Continue to document and photograph flood incidents where possible and report flooding to BCC and the EA.

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Explanation of Acronyms

Acronym	Definition
BCC	Buckinghamshire County Council
BMKFRS	Buckinghamshire and Milton Keynes Fire & Rescue Service
CDC	Chiltern District Council
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency, which has a Strategic overview role for flood and coastal erosion risk management
Flood	The temporary inundation by water of property or land not normally covered with water
Flood & Water Management Act 2010 (FWMA)	Part of the UK Government's response to Sir Michael Pitt's Report on the Summer 2007 floods, the aim of which (partly) is to clarify the legislative framework for managing local flood risk in England
Fluvial Flooding	Flooding resulting from water levels exceeding the bank level of a river
Groundwater flooding	Occurs when water levels in the ground rise above the natural surface. Low lying areas underlain by permeable strata (e.g. Chalk) are particularly susceptible
HYRAD imagery	Standard radar display system for flood warning across England, Wales, Scotland, Northern Ireland and Belgium
LLFA / Lead Local Flood Authority	Local Authority responsible for taking the lead on local flood risk management
Local Flood Risk	Flooding from sources other than Main Rivers, which principally concerns surface runoff, groundwater and ordinary watercourses. BCC has a responsibility under the Flood & Water Management Act to manage flooding from these sources
Main River	A watercourse shown as such on the Main River Map, and for which the Environment Agency has responsibilities and powers
Ordinary Watercourses	All watercourses that are not designated Main River, and which are the responsibility of local authorities or IDBs
Resilience Measures	Measures designed to reduce the impact of water that enters property and businesses; e.g. measures to raise electrical appliances
Resistance Measures	Measures designed to keep flood water out of properties and businesses; e.g. flood barriers and property level protection

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Risk	In flood risk management, risk is defined as a product of the probability or likelihood of a flood occurring, and the consequence of the flood
Risk Management Authorities (RMA)	Organisations that have a key role in flood and coastal erosion risk management as defined by the Flood & Water Management Act 2010. These are BCC (the Lead Local Flood Authority and Highways Authority), District Councils, Environment Agency, Buckingham and River Ouzel Internal Drainage Board, Anglian Water and Thames Water
SFRA	Strategic Flood Risk Assessment. These are produced by each District to give an assessment of flood risk from all sources and its implications for land use planning
Soil moisture deficits (SMDs)	Soil moisture deficit levels provide a measure of the capacity of the ground to store water: the higher the number, the greater the capacity
Stakeholder	A person or organisation affected by the problem or solution, or interested in the problem or solution. They can be individuals or organisations
Strategy	Under the Flood & Water Management Act 2010, BCC have a duty to develop, maintain, apply and monitor a strategy for local flood risk management
Sustainability	In the context of this Strategy, the risk of flooding must be reduced to benefit the present and in a way which does not compromise the interconnected needs of the economy, society and environment in the future
SuDS / Sustainable Drainage Systems	Methods of management practices and control structures that are designed to drain surface water in a more sustainable manner than some conventional techniques
Surface water/runoff	Rainwater (including snow and other precipitation) which is on the surface of the ground (whether or not it is moving), and has not entered a watercourse, drainage system or public sewer. The term 'surface water' is used generically to refer to water on the surface and is often associated with periods of intense rainfall
SWMP	Surface Water Management Plan
TfB	Transport for Buckinghamshire

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References

Reference in document	Refers to:
EA water situation reports	https://www.gov.uk/government/collections/water-situation-reports-for-england
Environment Agency 'Living on the Edge', 2016	https://www.gov.uk/government/publications/riverside-ownership-rights-and-responsibilities
Flood and Water Management Act (FWMA) 2010	https://www.gov.uk/guidance/flood-risk-management-information-for-flood-risk-management-authorities-asset-owners-and-local-authorities
Chiltern Society	https://chilternsociety.org.uk/

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Contacts

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Environment Agency



**Environment
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S60 1BY

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Email: enquiries@environment-agency.gov.uk

Website: <http://www.gov.uk/government/organisations/environment-agency>

Chiltern District Council



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Amersham
HP6 5AW

Telephone: 01494 729000

Email: info@chiltern.gov.uk

Website: <http://www.chiltern.gov.uk/flooding>

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Highways Authority

Transport for Buckinghamshire

Telephone: Transport and roads – 0845 2302882

Out of hours emergencies (Highways) – 01296 486630

Email: ffb@buckscc.gov.uk

Website: <http://www.transportforbucks.net/Transport-and-roads.aspx>

Water Utility



Thames Water

PO Box 286

Swindon

SN38 2RA

Telephone: 0845 9200 800

Website: <http://www.thameswater.co.uk/help-and-advice/16739.htm>

Emergency Response

Buckinghamshire Fire and Rescue Service

Address: Buckinghamshire Fire & Rescue Service, Brigade HQ, Stocklake, Aylesbury, Bucks, HP20 1BD

Telephone: 01296 744400

Website: <http://www.bucksfire.gov.uk/BucksFire/Contact+Us/>

Thames Valley Police

Telephone: 101 in non-emergency, 999 in emergency

Website: <http://www.thamesvalley.police.uk/contactus-phone.htm>

Buckinghamshire Ambulance Service

Telephone: 111 in non-emergency, 999 in emergency

Website: <http://www.southcentralambulance.nhs.uk/content/press-release/buckinghamshire/flooding-advice.ashx>

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Appendices

Appendix A: BCC criteria for a Section 19 Investigation

- Internal flooding (including to basements) to five or more residential properties within an area of 1km²
- Internal flooding of two or more business premises within an area of 1km²
- Internal flooding (including to basements) of at least one property for one week or longer
- Flooding of one or more critical infrastructure assets, which could include hospitals, health centres, clinics, surgeries, colleges, schools, day nurseries, nursing homes, emergency services (police, fire, ambulance) stations, utilities and substations
- Any flooding event that a risk management authority deems significant but does not meet the agreed thresholds should be assessed at the next strategic flood management group for consideration

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Appendix B: Photographs from event



Grimsdells lane



Drain outside property on High Street



Chiltern District Council car park

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High street drains post event



Deployed barrier at Amersham museum



High street Old Amersham

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Chiltern Avenue outside Amersham Health Centre



Chiltern Avenue during event (Bucks Free Press, 2016)

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Internal flood damage to a business on High Street, Old Amersham



Property level protection installed as a result of the event (Anastassopoulos, 2017)